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Social media burnout and social anxiety as antecedents of discontinuous usage in the stressor-strain-outcome framework

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This study aims to examine the structural relationships between problematic social media use (PSMU), social anxiety on social networking sites (SNSs), social media burnout (SMB), and discontinuous use from a stress-strain-outcome (SSO) framework. The research sample is 715 college students in Türkiye (58.5% female, M_{age}: 21.71). Based on the SSO framework, PSMU and users' social anxiety on SNSs were identified as stressors. In response to these stressors, users' experience of SMB was determined as strain. As a result of this strain, users' discontinuous use of SNSs was identified as the outcome. Moderated mediation analyses revealed that SMB mediated the negative effect of PSMU on discontinuous use. The mediating effect of SMB was moderated by users' social anxiety on SNSs. Users' social anxiety on SNSs had a buffering moderating effect on the relationship between PSMU and discontinuous use. The moderating effect of users' social anxiety on SNSs was significant in the positive relationship between SMB and discontinuous use. SMB was positively correlated with both PSMU and discontinuous use. Similarly, self-evaluation anxiety and shared content anxiety were positively correlated with both PSMU and discontinuous use. These findings provide empirical evidence for the relatively new "SMB paradox" literature and extend the "paradox of social anxiety" phenomenon, which reveals contradictions in the face-to-face socialization process, to social media. The results demonstrate complex relationships between the antecedents of discontinuous use from the SSO framework.

Keywords Discontinuous use, Social media burnout (SMB), Users' social anxiety on social networking sites (SNSs), Problematic social media use, SMB paradox, The paradox of social anxiety

Social media has become a dominant subject of daily life as a cause and, simultaneously, a consequence of changing communication styles under the influence of technological developments[1]. Statistics show that since the 2010s, daily social media usage rates have increased yearly[2,3]. Due to its invasive presence at the center of daily life with ubiquitous access, excessive social media use has negatively affected users[4,5]. Users' reactions to the adverse effects are either discontinuous use or complete abandonment. Studies have pointed out that social networking sites (SNS) users have decreased over specific periods, and many users are no longer interested in social media[6,7]. Users' taking a break from their digital connections, especially SNSs, for a certain period, has been conceptualized as "digital detox" in the literature[8]. The popularity of digital detox among users has increased the demand for applications that meet this need. In this way, many businesses in the tourism sector, especially software companies, have offered offline experiences for digital seclusion to their customers[8,9]. On the

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other hand, addressing the motivations behind discontinuous use is essential, and many studies have focused on this issue[6,7,10,11]. Nassen and colleagues[8], in their systemic review of 112 studies on digital disconnection, examined the reasons for it in six themes. These are (i) the individual's own perception of overuse, (ii) the need to improve social interactions, (iii) the theme of well-being, which includes stress, self-esteem, physical well-being, and depression subcategories, (iv) reducing privacy concerns, and (v) wanting to reduce the feeling of banality of use. In the case of SNSs, it has been suggested that the intention to interrupt and permanently quit use is mainly caused by problematic social media use (PSMU) and social media burnout (SMB)[12–16]. Several studies in the literature have highlighted users' social anxiety in social networks as another motivation for the discontinuous use of SNSs[17,18]. The relationship between users' social anxiety on SNSs and PSMU, SMB, and discontinuous use is of interest.

Compared to older generations and other social groups, adolescents and young adults are more familiar with social media and use it more frequently and for longer periods as their primary means of interaction[19]. As a result, young adults are more vulnerable to PSMU[20–22]. Naturally, SMB is more likely to occur frequently in young adults[6]. Knowing the reasons behind discontinuous use is essential for understanding young adults' behavioral patterns on social media. In this direction, the present study proposed a model that reveals the relationships between the relevant variables according to the stressor-strain-outcome (SSO) model. The following section presents the definition of the four constructs, their relationships, the hypotheses, and the study's theoretical framework.

Literature review, hypotheses, and theoretical framework

The mediating effect of social media burnout

SMB refers to a series of negative adverse reactions to activities on SNSs, such as disinterest in communication, frustration, exhaustion, and fatigue[23]. The nature of SNSs, designed to provide instant gratification through constant dopamine hits the brain, contributes to this emotional state. However, when users get used to these constant dopamine hits, they develop resistance to them. The social media experience becomes unrewarding, making users feel less satisfied and more frustrated with social media[24,25]. As SMB is a newly developed concept, there is no consensus on its precise definition or scope[13,26]. The literature has identified that "social network services fatigue" and "social media fatigue" are used equivalently with SMB[12,27]. SMB is a decrease in users' interest in SNS use and a break from social media use for a certain period[4,13,26,28]. According to a survey of users in the United States, 60% stopped using Facebook for a short period, and 20% stopped using it permanently[29]. Since its inception, Facebook experienced a decline in active users for the first time in 2018. In the study by Schonebeck[30], users who participated in the 'Giving up Twitter for Lent' campaign emphasized that sending and responding to messages on social media occupied too much time in daily life. They pointed out that excessive use of social media adversely impacts work life and sleep quality and prevents them from enjoying the benefits of real life. According to Statista[31], the decrease in *Twitter* (now is *X*) users between 2022 and 2024 is approximately 32.7 million. SMB is an emotional and mental fatigue syndrome resulting from prolonged use of SNSs[4,24,32].

Han[4], inspired by the theoretical framework of occupational burnout[33], conceptualized SMB in three sub-dimensions: ambivalence, emotional exhaustion, and depersonalization. He developed a scale for this conceptual framework for SMB and conducted validity and reliability studies[4]. Emotional exhaustion is defined as users' perception that their effort, labor, and time are exhausted by using SNSs[4]. Information overload, system feature overload, and social overload are important antecedents of emotional exhaustion[14,34,35]. SNS information overload is a stressor in instant messaging apps and causes SMB[36]. Exposing users with limited information processing capacity to too much information on SNSs will result in information overload[37]. Excessive exposure to unnecessary information can lead to regret regarding SNS use and frustration[38,39]. Users need to be more active on social media as they try to maintain their reputation and self-acceptance on SNSs. To be active on SNSs, it is necessary to be constantly alert and follow notifications[40]. Social overload is the negative emotions that users feel when trying to keep up with their social media friends' requests and maintain a relationship with them[41]. Users experience SMB when they engage in too much social communication and feel they are fulfilling their friends' requests too much in SNSs[42,43]. Excessive exposure to other users' requests in SNSs has been reported to cause technostress as well as feeling exhausted and overwhelmed[26,44]. Users' perceptions that the functions and features offered by SNSs are complex and exceed their demands are conceptualized as system feature overload[23]. For example, users may perceive this as system feature overload because they cannot adapt to updates and new interfaces offered by SNSs[39]. According to Han[4], transforming SNS use into stressful responsibility can lead users to perceive themselves as burned out.

Ambivalence is the uncertainty between social media use's positive and negative consequences[26]. Emotional exhaustion can cause users to feel an emotional gap towards SNSs. This indicates depersonalization[26,45]. According to Han[4], depersonalization is the suspension of SNS use for a certain period as a direct result of emotional exhaustion caused by information overload, system feature overload, and social overload. Empirical research has reported that system feature overload and information overload trigger SMB, which positively affects discontinuous use of SNSs and intention to quit[7,10,11,46,47]. Furthermore, to minimize the adverse effects of social overload, it was found that users are discontinuous users of SNSs and consider discontinuing use altogether[15,39].

According to the socio-cognitive model, PSMU develops and leads to addiction because of internet self-efficacy, positive outcome-seeking, and limited internet self-regulation[48]. Compulsive and problematic use of SNSs negatively affects users in behavioral, cognitive, and affective domains[49–52]. This situation causes problems such as disruptions in self-care, work and academic life, and deterioration in emotional mood[53–55]. PSMU has been reported to bring about many maladaptive problems such as negative emotions (e.g., anxiety, depression, loneliness), social isolation, low well-being, and even psychiatric disorders[56–60]. It has been emphasized that intensive and excessive use of SNSs can lead to emotional disturbances[61], and this will cause a negative

perspective towards SNSs[62]. Excessive hedonistic, social, and cognitive use of SNSs leads to technostress, and the resulting SMB leads to discontinuous use of SNSs[63]. Empirical research has revealed that PSMU is positively correlated with SMB[6,13,16], SMB inhibits the continuous use of SNSs, and users consider quitting social media for a certain period[40,64].

Hypothesis 1 (H1): PSMU positively predicts SMB.

Hypothesis 2 (H2): PSMU negatively predicts discontinuous use.

Hypothesis 3 (H3): SMB positively predicts discontinuous use.

Hypothesis 4 (H4): SMB mediates the negative relationship between PSMU and discontinuous use. In this relationship mediated by SMB, users' social anxiety on SNSs has a moderating effect. As the users' social anxiety on SNSs increases, the mediating effect of SMB will also increase. As users' social anxiety on SNSs decreases, the mediation effect of SMB will decrease.

The moderating role of users' social anxiety on SNSs

Social phobia, or in other words, social anxiety, can be defined as "a situation of anxiety arising from the possibility or presence of interpersonal evaluation in real or imagined social environments"[65]. Those with high social phobia are more depressed and anxious in social environments. They avoid interacting with others and establishing close relationships in social environments[66–68]. It is suggested that the fear of being criticized, rejected, and negatively evaluated lies at the basis of social anxiety[69,70]. Those with high levels of social phobia experience a lack of social performance to minimize negative interactions with peers and the social environment and have difficulty making close connections with individuals around them[71,72]. These individuals have been reported to use SNS more frequently to avoid social interactions as much as possible[73–76]. Individuals with social phobia prefer SNSs using certain technologies, such as smartphones, because virtual socialization allows them to interact more comfortably in various social contexts without being influenced by the scrutiny and judgments of others[77–80]. On the other hand, social anxiety and depression have been reported to be more common among young adults with PSMU[81–84]. Empirical research indicating that PSMU is significantly associated with social phobia is noteworthy[85–87]. As a result, PSMU has been reported to cause social anxiety and similar psychological problems rather than reducing social anxiety in users[85–90]. Raimondi et al.[90] emphasized that there is a positive relationship between users' social anxiety on SNSs and psychological disorders (depression, anxiety, and obsession). They also noted a positive association between social phobia and social anxiety on SNSs. One reason for this may be that individuals with more mental health problems use social media more intensively and are less resilient to negative situations on social media, especially cyberbullying[90–92]. Another reason may be that users with social phobia are more afraid of being negatively evaluated, criticized, having their personal information disclosed, and being subjected to cyberbullying on social media than users with relatively lower levels of social phobia[86,90,93].

Being prone to emotional hurt[94], interpersonal trust[95], fear of negative evaluation[96], and fear of privacy invasion[97] can be considered antecedents of users' sharing anxiety on SNSs[18,93,98]. Likely, individuals who feel more hurt will also have higher social anxiety[99]. Similar behaviors can be expected to carry over to SNSs. Users who feel more hurt may experience greater anxiety about social media sharing[18]. Due to anonymity, trust in online environments may be lower than in authentic social environments[95]. This situation will likely increase social media anxiety and hinder online sharing. Fear of negative evaluation may positively affect sharing anxiety on SNSs. Users who fear being negatively evaluated for their posts may be expected to post less on SNSs and use these platforms irregularly[18]. Privacy concerns are the concern about the disclosure of certain crucial personal information through SNSs (e.g., unintentional or inadvertent disclosure of birthdays, cell phone numbers, home addresses, and personal photos)[93,97]. Young adults with privacy concerns may also be socially anxious. Therefore, they are very likely not to disclose their private situations online. This is because social phobia affects their communication and interaction[13,93]. Empirical studies have indicated that privacy concerns[16,17,100,101], relationship concerns[102], frustrations[103], feelings of embarrassment[104], and impression management concerns[105] are significant predictors of SMB and discontinuous use[23].

Hypothesis 5 (H5): PSMU and users' social anxiety on SNSs interact to predict discontinuous use. As users' social anxiety on SNSs increases, the negative impact of PSMU on discontinuous use will increase. As users' social anxiety on SNSs decreases, the negative impact of PSMU on discontinuous use will decrease.

Hypothesis 6 (H6): SMB and users' social anxiety on SNSs interact to predict discontinuous use. As users' levels of social anxiety on SNSs increase, the positive effect of SMB on discontinuous use increases. As users' level of social anxiety on SNSs decreases, the positive impact of SMB on discontinuous use decreases.

The theoretical framework of the current study (Stressor-Strain-Outcome Model)

The present research aims to explore the structural relationships between college students' PSMUs, social anxiety on SNSs, SMBs, and discontinuous use according to the SSO framework. The relationships between the relevant variables are structured according to the SSO theoretical framework. SSO is an important model that reveals the impact of the complex relationships between stress and strain on individuals[106]. Environmental agents the individual believe to cause distress and harm him/her are characterized as stressors. The adverse effects of stressors on individuals' emotions and psychological states are described as stress. Individuals' psychological and behavioral reactions to these adverse effects are outcomes[106]. Because it deals with stressors and reactions

to them, the SSO model has been frequently used in research on PSMU[23,40,107,108]. Previous studies have emphasized that stressors (self-disclosure on SNSs, PSMU, privacy concerns) cause strain and negatively affect academic achievement (outcome)[107,109,110]. Using the SSO theoretical framework, research has reported that overload and PSMU are stressors that negatively affect users' psychological and emotional well-being and lead to SMB, positively affecting discontinued use and intention to quit[107,111–113]. The theoretical framework of the present research is shown in Fig. 1.

As can be seen in Fig. 1, in the current study, PSMU and users' social anxiety on SNSs were identified as stressors. In response to these stressors, users' experience of SMB is defined as strain. As a result of this strain, discontinuous use and/or intention to discontinue is defined as an outcome.

Method

Research context, sample, and procedure

Before the data collection process, approval was obtained from the Social Sciences Ethics Committee of Anadolu University, where the first author works. The methods were implemented with careful consideration of the principles described in the Declaration of Helsinki. The study was conducted with 715 young adults (58.5% female, M_{age}: 21.71) from different universities in Türkiye who were selected by a convenience sampling method. The average daily SNSs usage time of the participants was 3.02 hours and their number of friends on SNSs varied (less than 100: 26.9%, between 100 and 300: 34.4%, between 301 and 500: 24.6%, 501 and above: 14.1%). The inclusion criteria of the participants are as follows: (i) be over 18 years of age, (ii) be an active college student at the time of data collection, and (iii) provide informed consent by signing the consent form. The recruitment period is between April and June 2024. Anonymous data were gathered via an online platform. Participants were reached through academics at the universities they were affiliated with. Participation in the research was optional, and individuals received no incentives. Participants were guaranteed that their personal information would be maintained in strict confidence. As all data entry was obligatory, there were no cases of missing data.

Measures

Social media addiction scale

The scale developed by Özgenel et al.[114] in Turkish culture was used to measure PSMU. The five-point Likert scale consists of 9 items. Higher scores mean higher levels of PSMU (Sample item: "When I do not use social media, I get angry, anxious or sad."). Confirmatory factor analysis (CFA) results indicated that the original one-factor structure of the scale was confirmed, and the fit indices were at an excellent level: $\chi 2/df = 3.729$, incremental fit index (IFI) = 0.956, Tucker-Lewis index (TLI) = 0.940, root mean square error of approximation (RMSEA) = 0.062, standardized root mean square residual (SRMR) = 0.041, comparative fit index (CFI) = 0.956. The internal consistency coefficients determined by Cronbach's α and McDonald's ω were 0.846 and 0.848, respectively.

Social media burnout scale

The scale developed by Han[4] and adapted to Turkish culture[115] was used to measure SMB. The five-point Likert scale consists of emotional exhaustion (Sample item: "I feel exhausted by using social media"), depersonalization

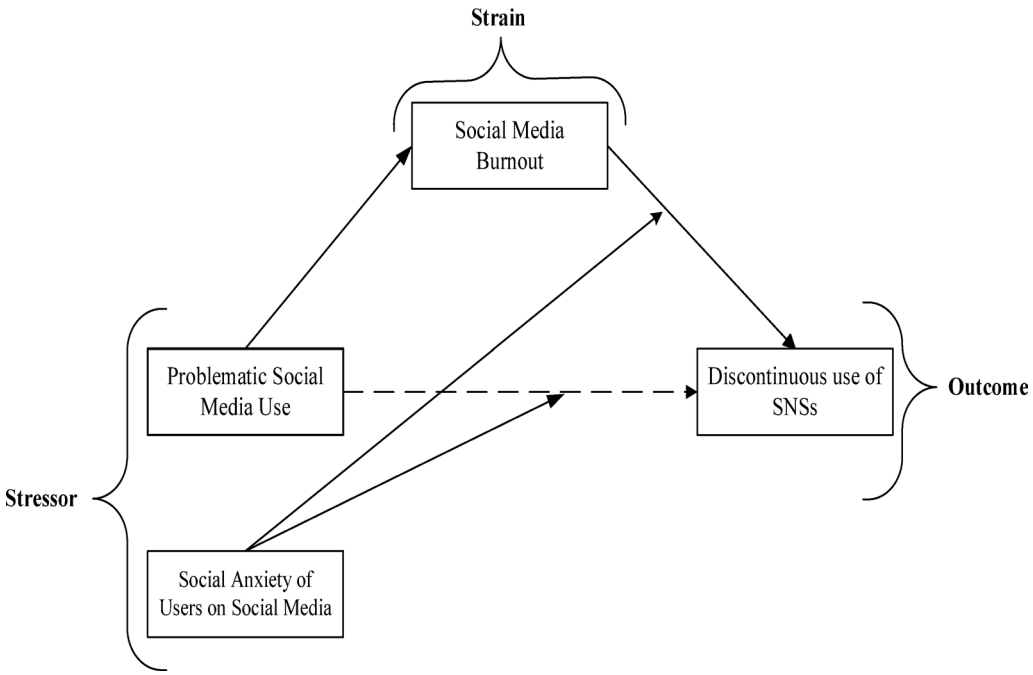

Fig. 1. Theoretical framework and hypothetical model.

(Sample item: "I do not really care what happens on social media"), and ambivalence (Sample item: "I do not know if using social media is worth my time") sub-dimensions. Higher scores mean a higher level of SMB. Results from the CFA validated the initial one-factor structure of the scale, and the fit indices were good: $\chi 2/df = 4.354$, IFI = 0.929, TLI = 0.888, RMSEA = 0.069, SRMR = 0.043, CFI = 0.928. In the current research, the internal consistencies of the scale's sub-dimensions were very good. (emotional exhaustion: $\alpha = 0.696$; $\omega = 0.698$; ambivalence: $\alpha = 0.697$; $\omega = 0.701$; depersonalization: $\alpha = 0.703$; $\omega = 0.721$).

Social anxiety scale for social media users

The scale developed by Alkis et al.[93] was used to determine the social anxiety of users on SNSs. The original scale is in Turkish. Consisting of 21 items and four sub-dimensions, higher scores are interpreted as an increase in the level of anxiety on social media (Sample items = Shared content anxiety: "On social media, I am concerned about the fact that others may find my actions strange". Privacy concern anxiety: "On social media, I worry about the possibility of my private information being intercepted by others." Interaction anxiety: "I am afraid of interacting with others on social media." Self-evaluation anxiety: "I worry about people thinking badly about me on social media."). The results of the CFA supported the original four-factor structure of the scale, and the fit indices were good: $\chi 2/df = 6.207$, IFI = 0.924, TLI = 0.895, RMSEA = 0.089, SRMR = 0.041, CFI = 0.924. In the present study, the internal consistencies of the subscales of the scale were quite good (shared content anxiety: $\alpha = 0.786$; $\omega = 0.788$; privacy concern: $\alpha = 0.791$; $\omega = 0.798$; interaction anxiety: $\alpha = 0.701$; $\omega = 0.712$; self-evaluation anxiety: $\alpha = 0.709$; $\omega = 0.736$).

Social media use continuance scale

The scale developed by Han[4,116] to measure discontinuous SNS use was adapted to Turkish culture. The original scale is a 7-point Likert scale. To align its score compatible with the other scales in the study, the Turkish version of the scale is structured as a five-point Likert scale. The unidimensional scale consists of 4 items. The items were reverse-coded so that higher scores could be interpreted as higher levels of discontinuous SNS use. The findings of the CFA validated the initial one-factor structure of the scale, and the fit indices proved to be excellent: $\chi 2/df = 0.003$, IFI = 0.999, TLI = 0.999, RMSEA = 0.001, SRMR = 0.001, CFI = 0.999. In the present study, Cronbach's α and McDonald's ω internal consistency coefficients were 0.729 and 0.728, respectively.

Data analysis

Preliminary analyses

SPSS version 27 (IBM Corp., Armonk, NY, USA) was used in all analyses. Descriptive statistics and Pearson correlation analysis were conducted. P-value < 0.05 was accepted for statistical significance. In normality tests, it was confirmed that skewness and kurtosis values were between ± 1[117]. For the multicollinearity problem, it was confirmed that the variance inflation factor (VIF) was less than 10[118].

Moderated mediation analyses

Model 15 in the PROCESS macro embedded in SPSS was used for moderated mediation analyses[119]. For the significance of the indirect effect, 5000 bootstrapping and confidence intervals (CI) were used. Significant effects are supported when CIs do not contain zero between the lower (LL) and upper (UL) limits[119]. Mean-centered was applied for easier interpretation of the findings. Simple slope analyses were used to calculate and visualize the conditional effects of PSMU and SMB on discontinuous use at different values (low, average, high) of users' social anxiety on SNSs.The "-1SD, +1SD" feature of PROCESS (https://www.processmacro.org/index.html) was utilized to determine the high and low values of the moderator variable.

Results

Preliminary analyses

Descriptive statistics and correlation coefficients are given in Table 1. Normality analysis values were within the normal range (skewness and kurtosis ≤ |1|).

Table 1 demonstrates no statistically significant correlation between PSMU and the interaction anxiety subscale. PSMU is negatively related to the discontinuous use and privacy subdimensions. The subdimensions of the SMB scale, PSMU, and the subdimensions of the social anxiety scale on SNSs are positively related.

Moderated mediation analyses

Table 2 shows the moderating mediating effect of PSMU on discontinuous use. In the model where SMB was the outcome variable, the direct effect of PSMU on SMB was positive and significant (B = 0.229, SE = 0.029, $p < .05$). This finding indicates that H1 is confirmed. Moreover, the model is significant ($F_{(1, 713)} = 62.553$, $p < .05$), and PSMU explains 8% of the variance in SMB ($R^2 = 0.081$).

In the model where discontinuous use was the outcome variable, the conditional negative effect of PSMU on discontinuous use was significant (B = − 0.357, SE = 0.037, $p < .05$). The conditional positive effect of SMB on discontinuous use is significant (B = 0.364, SE = 0.051, $p < .05$). These findings indicate that H2 and H3 are confirmed.

The conditional effect of the interaction variable (PSMU x social anxiety on SNSs) on discontinuous use was negatively significant (B = − 0.095, SE = 0.037, $p < .05$). The conditional effect of the interaction variable (SMB x social anxiety on SNSs) on discontinuous use was positively significant (B = 0.142, SE = 0.051, $p < .05$). The significance of the identified moderating mediator effect was tested with 5000 bootstrapping samples at 95% confidence intervals (B = 0.033, SE = 0.017, 95% CI = 0.001, 0.066). No zero values were observed in the confidence intervals of the interaction value. This finding indicates that H4 was confirmed. Furthermore, the model was significant ($F_{(5, 709)} = 29.368$, $p < .05$), and the independent variable, mediator variable, and moderator

Variable	M ± SD	Skewness	Kurtosis	1	2	3	4	5	6	7	8	9
1. Emotional exhaustion	2.69 ± 0.96	0.11	−0.36	–	0.43**	0.36**	0.20**	0.14**	0.29**	0.30**	0.35**	0.21**
2. Ambivalence	2.48 ± 0.86	0.29	−0.33		–	0.30**	0.33**	0.13**	0.27**	0.32**	0.37**	0.16**
3. Depersonalization	2.83 ± 0.93	0.05	−0.61			–	0.08*	0.36**	0.09*	0.13**	0.25**	0.29**
4. PSMU	2.43 ± 0.87	0.48	−0.28				–	−0.25**	0.11**	0.11**	0.07	−0.08*
5. Discontinuous use	2.79 ± 0.89	0.30	−0.09					–	0.11**	0.16**	0.17**	0.12**
6. Shared Content Anxiety	2.48 ± 1.09	0.33	−0.79						–	0.77**	0.38**	0.28**
7. Self-Evaluation Anxiety	2.48 ± 1.04	0.28	−0.76							–	0.41**	0.26**
8. Interaction Anxiety	2.82 ± 1.00	0.05	−0.64								–	0.41**
9. Privacy Concern Anxiety	3.51 ± 1.09	−0.56	−0.47									–

Table 1. Descriptive statistics and correlation ($N = 715$). M = mean, SD = standard deviation, PSMU = problematic social media use, ** = p <. 01, * = p <. 05.

Model (Social media burnout [SMB])	B	SE	t	*p*	CI lower	CI upper
PSMU	**0.229**	**0.029**	**7.909**	**< 0.001**	**0.172**	**0.286**
Model summary	**R**	**R^2**	**F**	**df1**	**df2**	**p**
	0.284	0.081	62.553	1	713	< 0.001
Model (Discontinuous Use)	**B**	**SE**	**t**	**p**	**CI lower**	**CI upper**
PSMU	−0.357	0.037	-9.704	< 0.001	−0.429	−0.285
SMB	0.364	0.051	7.152	< 0.001	0.264	0.464
Social anxiety on SNSs	0.101	0.044	2.316	0.021	0.015	0.186
PSMU x social anxiety on SNSs	−0.095	0.037	-2.543	0.011	−0.168	−0.022
SMB x social anxiety on SNSs	0.142	0.051	2.820	0.001	0.043	0.242
Model summary	**R**	**R^2**	**F**	**df1**	**df2**	**p**
	0.414	0.172	29.368	5	709	< 0.001
Conditional indirect effects of PSMU on Discontinuous Use (PSMU→SMB→ Discontinuous Use)						
Social anxiety	**B**	**BootSE**	**Boot 95% CI lower**		**Boot 95% CI upper**	
Low (-1SD)	0.058	0.019	0.024		0.099	
High (+ 1SD)	0.109	0.025	0.063		0.162	
Changes in R^2 as a result of interaction						
		ΔR^2	**F**	**df1**	**df2**	**p**
PSMU x social anxiety on SNSs SMB x social anxiety on SNSs		0.008 0.009	6.468 7.954	1 1	709 709	0.011 0.005
Index of moderated mediation						
	B	**BootSE**	**Boot 95% CI lower**		**Boot 95% CI upper**	
Social anxiety on SNSs	0.033	0.017	0.001		0.066	

Table 2. Moderated mediation effect of problematic social media use (PSMU) on social networking site (SNS) ($N = 715$). Bold fonts are the statistics reported in the analyses. *B* unstandardized coefficient, *SE* standard error; *CI lower* 95% confidence interval at lower limit, *CI upper* 95% confidence interval at upper limit, *df* degrees of freedom, *SD* standard deviation, *BootSE* bootstrapping standard error, *Boot 95% CI lower* 95% bootstrapping confidence interval at lower limit, *Boot 95% CI upper* 95% bootstrapping confidence interval at upper limit, ΔR^2 change of R^2.

variable explained 17.2% of the variance in discontinuous use ($R^2 = 0.172$). Accordingly, as users' social anxiety on SNSs increased (+ 1SD), the mediating effect of SMB on the negative relationship between PSMU and discontinuous use also increased (B = 0.109, SE = 0.025, 95% CI = 0.063, 0.162). As users' social anxiety on SNSs decreased (-1SD), the mediating effect of SMB on the negative relationship between PSMU and discontinuous use also decreased (B = 0.058, SE = 0.019, 95% CI = 0.024, 0.099).

Simple slope analyses were conducted to determine how the conditional effects of PSMU on discontinuous use differed for different values of the moderator (users' social anxiety on SNSs). The results are given in Table 3 and displayed in Fig. 2.

As shown in Fig. 2, the conditional negative effect of PSMU on discontinuous use increased when users' social anxiety on SNSs was high (B = − 0.432, SE = 0.049, 95% CI = − 0.528, − 0.337). The conditional negative effect of PSMU on discontinuous use was also decreased when users' social anxiety on SNSs was low (B = − 0.282, SE = 0.046, 95% CI = − 0.372, − 0.192). This finding indicates that H5 was confirmed. The change in R^2 as a result

	Social anxiety on SNSs	B	SE	t	*p*	CI lower	CI upper
PSMU-->DU	Low (-1SD)	−0.282	0.046	-6.160	< 0.001	−0.372	−0.192
	High (+1SD)	−0.432	0.049	-8.890	< 0.001	−0.528	−0.337
SMB-->DU	Low (-1SD)	0.251	0.065	8.864	< 0.001	0.124	0.379
	High (+1SD)	0.477	0.065	7.383	< 0.001	0.350	0.604

Table 3. Conditional effects of PSMU and SMB on discontinuous use at different values of the moderator variable. *PSMU* problematic social media use, *DU* discontinuous use, *SMB* social media burnout, *SD* standard deviation, *SE* standart error, *CI* confidence interval.

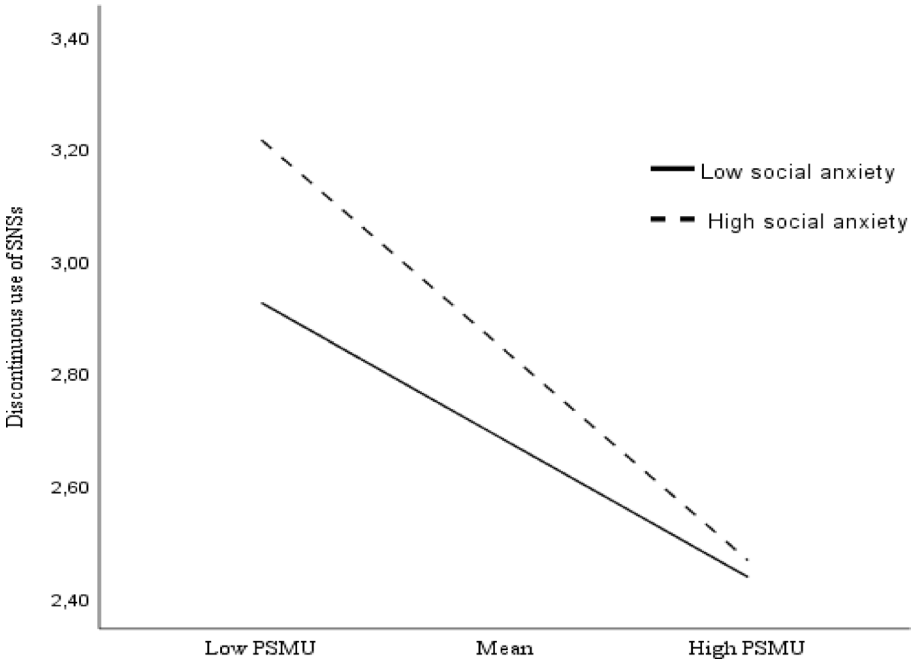

Fig. 2. Interaction effect of "problematic social media use (PSMU) x social anxiety on social networking sites (SNSs)" interaction term on discontinuous use.

of this interaction was significant ($F_{(1, 709)} = 6.468$, $p < .05$), and its contribution to the variance explained was $\Delta R^2 = 0.008$ (Table 2).

Simple slope analyses were conducted to determine how the conditional effects of SMB on discontinuous use differed for different values of the moderator (users' social anxiety on SNSs). The results are given in Table 3 and displayed in Fig. 2.

As shown in Fig. 3, the conditional positive effect of SMB on discontinuous use increased when users' social anxiety on SNSs was high (B = 0.477, SE = 0.065, 95% CI = 0.350, 0.604). When users' social anxiety on SNSs was low, the conditional positive effect of SMB on discontinuous use also decreased (B = 0.251, SE = 0.065, 95% CI = 0.124, 0.379). This finding indicates that hypothesis H6 is confirmed. The change in R^2 as a result of this interaction was significant ($F_{(1, 709)} = 7.954$, $p < .05$), and its contribution to the explained variance was $\Delta R^2 = 0.009$ (Table 2).

Discussion

The present study focused on the impact of PSMU, users' social anxiety on SNSs, and SMB on discontinuous use from the SSO framework. The results revealed that, in line with the SSO framework, users' social anxiety on SNSs and PSMU act as Stressors, causing users to experience Strain and SMB. SMB, because of strain, led to the Outcome of discontinuous use. The present research results are consistent with prior studies that address discontinuous use from an SSO framework[10,107,112]. It also contributed to the expansion of existing literature by incorporating users' social anxiety on SNSs into the SSO framework as a stressor.

The results revealed that PSMU was a negative predictor of discontinuous use. SMB was a significant positive predictor of discontinuous use. These results are consistent with prior empirical research, indicating that SMB leads to discontinuous use[7,39,40]. It has been reported that individuals who experience burnout respond to unpleasant situations by showing low performance and engagement[7,120,121]. The current study extends the results of studies on general burnout to the social media context and expands the literature. SMB also mediated the relationship between PSMU and discontinuous use. This result supports the studies emphasizing that PSMU

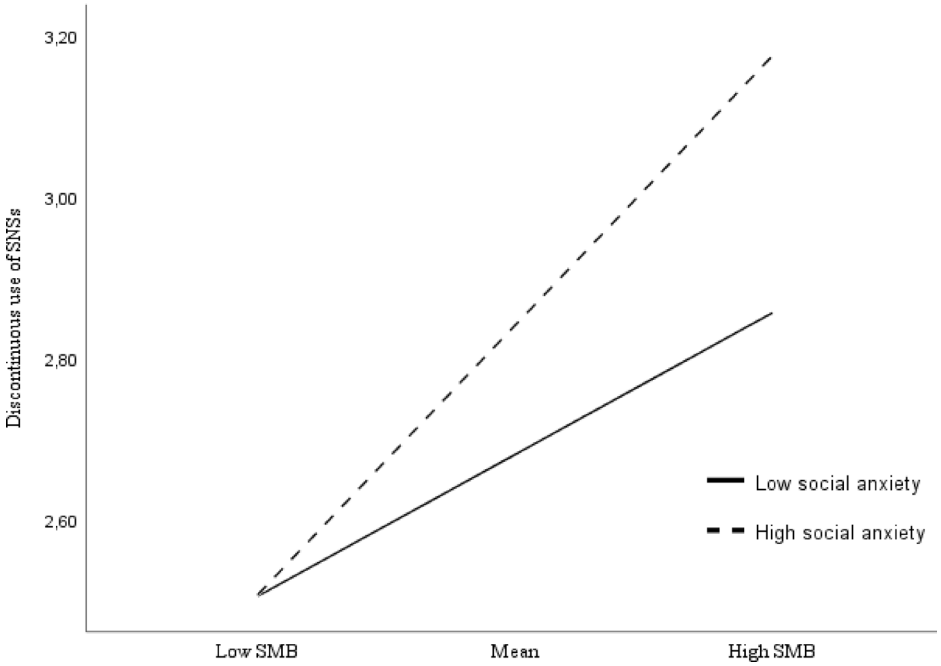

Fig. 3. Interaction effect of "social media burnout (SMB) x social anxiety on social networking sites (SNSs)" interaction term on discontinuous use.

negatively affects the psychological and emotional state of users, that problematic use leads to SMB in users due to its irregular and uncontrollable nature, and that this leads to discontinuous use[6,13,16,19,61–63,122]. The result of the current study is remarkable. Because SMB is positively related to both PSMU and discontinuous use. Users with PSMU have more intention to use SNS, and in fact, the negative relationship between PSMU and discontinuous use is empirically supported in this study. On the other hand, PSMU led to SMB, which in turn led to discontinuous use. These results are significant as they reveal the influence of different phenomena that affect the complex relationships between PSMU and social media continuance. While PSMU directly positively influenced the social media continuance, it also indirectly positively influenced the discontinuous use of SNSs by causing SMB. Chen et al.[6] conceptualized the positive relationship between SMB and both two negatively correlated variables (PSMU and discontinuous use) as the "social media fatigue [SMF] paradox/SMB paradox." The SMB paradox refers to the situation where users have a negative attitude towards SNSs yet remain heavily dependent on them and do not significantly reduce their intensity of use. This paradox stems from whether users who experience SMB quit SNSs, which is a topic of debate in the literature. In other words, even if users feel burned out, they continue to use SNSs. This is due to the contradictions between PSMU and SMB that develop in users due to social overload, system feature overload, and cognitive overload. Users continue to use SNSs despite their negative attitudes and their usage may even increase. This is not due to general and passive use but to PSMU itself[6]. PSMU brings many problems, such as social isolation, academic procrastination, psychological distress (e.g., depression, loneliness, anxiety), lower perceived psychological well-being, and decreased quality of life[57,123–125]. Therefore, even if users experience SMB due to PSMU, they may be unable to stop using SNS completely due to the abovementioned adverse effects. This may lead to a vicious cycle, the SMB paradox. Supporting the current research results, Chen et al.[6], in their meta-analysis of 112 studies, found that SMB positively correlates with both PSMU and discontinuous use. When all these results are evaluated together, it can be interpreted that even if they are aware of the negative aspects, users cannot completely give up SNSs at once and instead prefer discontinuous or passive use[6,28].

Another critical issue in the current study is the multidirectional relationships of users' social anxiety on SNSs, which is a stressor in the SSO theoretical framework, with PSMU, SMB, and discontinuous use. All three different moderating effects of users' social anxiety on SNSs are statistically significant and consistent with the theoretical model dataset. The first one is the moderating effect on the mediating effect of SMB on the association between PSMU and discontinuous use. As users' social anxiety on SNSs increased, the mediating effect of SMB also increased. As users' social anxiety on SNSs decreased, the opposite was true. Accordingly, it can be said that users' social anxiety on SNSs triggers SMB. The second is the buffering moderator effect in the relationship between PSMU and discontinuous use. As users' social anxiety on SNSs increased, the negative effect of PSMU on discontinuous use increased. As users' social anxiety on SNSs decreased, the opposite happened. That is, as users' social phobia on SNSs increased, the positive effect of PSMU on SNSs use continuance decreased. Accordingly, users' social anxiety on SNSs interfered with social media continuance and had a buffering moderating effect on the relationship between PSMU and continuance of use. Posting on SNSs is linked to more social support and subjective well-being. Users who receive more attention and support due to sharing are expected to continue this behavior. On the other hand, users who fear being negatively evaluated due to their posts and are concerned

that their posts do not receive enough social support may avoid interacting. This may weaken their relationships with other users[126]. This may cause users with more social anxiety on SNSs to discontinue or even abandon their use. In the study conducted by Stieger et al.[127], it was emphasized that people who gave up using SNSs stopped using social media entirely due to reasons such as privacy concerns, social overload caused by friends, and addiction risks. Accordingly, it can be said that users' social anxiety on SNSs has a negative effect on social media continuance. Moreover, a moderate effect was found in the relationship between SMB and discontinuous use. As users' social anxiety on SNSs increased, the positive effect of SMB on discontinuous use also increased. As users' social anxiety on SNSs decreased, the opposite was true. These results support previous empirical research emphasizing that privacy concerns on SNSs positively affect SMB[128,129], discontinuous use[16,17], and complete withdrawal[127]. Previous research has addressed the association between users' social anxiety on SNSs and discontinuous use and SMB only in the context of privacy concerns. In addition to privacy concerns, the positive moderating effect of self-evaluation anxiety, interaction anxiety, and shared content anxiety on SMB and discontinuous use has been empirically proven for the first time in the present study, expanding the existing literature. In the current study, users' social anxiety on SNSs was identified as stressors that lead to strain, i.e., SMB and discontinuous use within the framework of SSO. When the limited number of studies[18,90,93] in the literature were analyzed, it was seen that users' social anxiety on SNSs was not addressed from the SSO framework. The results of the current study are considered valuable in exploring social anxiety on SNSs on a particular theoretical ground.

Another result of the current study is that, just like in the SMB paradox, self-evaluation anxiety and shared content anxiety sub-dimensions are positively related to both PSMU and discontinuous use. According to the SSO framework, users with high levels of social anxiety on SNSs are expected to experience SMB, that is, to experience stress due to the adverse effects of stressors, and as a result, their intentions of discontinuous use are expected to increase. Indeed, the results of the present research empirically supported this. Instead of reducing social anxiety in users, PSMU causes social anxiety and similar psychological problems[85,88,90]. Theoretically, users with high levels of social anxiety on SNSs are expected to have lower PSMU levels due to many potential negative situations, such as cyberbullying, discrimination, rejection, ridicule, and negative evaluation. On the other hand, even if users feel social anxiety (shared content anxiety and self-evaluation anxiety) on SNSs, their PSMU continues. In this case, it can be said that users experience the "paradox of social anxiety on SNSs." Social media has become a primary means of social interaction, especially among young adults, as it has become a part of daily life and brought about radical changes in communication styles[47]. As such, SNSs are gradually losing their characteristic of being a place where individuals with social anxiety disorder can avoid social comparisons and feel more comfortable. Nevertheless, it seems unlikely that users with high levels of social anxiety on SNSs will completely withdraw from SNSs despite experiencing social anxiety. This is because access to social media has become even easier with the widespread use of smartphones, and as a result, social media has invasively found itself at the center of daily life[130]. There is also a positive relationship between general social anxiety and social anxiety on SNSs[90]. People with high levels of general social anxiety do not perceive social anxiety to be specific to SNSs, and therefore, it can be said that their PSMU levels are high. The positive relationship between users' social anxiety on SNSs (shared content anxiety, self-evaluation anxiety) and PSMU can be explained by the privacy paradox[131]. Chen et al.[6] drew attention to the contradiction between users' privacy needs and their willingness to disclose personal information on SNSs in the age of technology. They emphasized that although they have a negative attitude towards SNSs, users have difficulty reducing their use and still trust social media, emphasizing that this is the SMB paradox. It was pointed out that it is not easy for users with high levels of excessive and problematic use to give up social media due to their addiction, even if their SMB levels are high[132]. It can be said that a similar situation experienced in the SMB paradox is also valid for shared content anxiety and self-evaluation anxiety. On the other hand, there are no significant positive relationships between the other two sub-dimensions of the social anxiety scale (interaction anxiety and privacy concern anxiety) and PSMU. Considering the low level of significant positive correlations between self-evaluation anxiety and shared content anxiety sub-dimensions and PSMU, a cautious interpretation of the results of the present investigation is recommended.

Strengths, limitations, and directions for future research

The current research is based on the SSO framework, focuses on the antecedents of discontinuous use, and tries to extend the insights in the existing literature in the context of Turkish culture. From the SSO framework, it can be considered valuable in this respect that users' social anxiety on SNSs is addressed for the first time as a stressor affecting SMB and discontinuous use. A significant portion of prior research has concentrated on social anxiety in direct interpersonal contacts. Limited research on users' social anxiety on SNSs has focused on privacy concerns as a predictor of SMB and discontinuous use. Considering that the SSO framework adopts a holistic perspective that includes other components of social anxiety on SNSs (interaction anxiety, fear of negative evaluation, shared content anxiety), it can be said that the current research is exploratory. Another critical aspect of the study is its empirical contribution to the "SMB paradox" phenomenon conceptualized by Chen et al.[6] which can be considered relatively recent. Although intensive and problematic SNS use leads to SMB, users do not easily give up SNS use. In other words, PSMU is positively related to both social media continuance and SMB, negatively predicting social media continuance. It is anticipated that the present research results will be valuable for future research to clarify the inconsistencies between PSMU and SMB.

The current research brings the "paradox of social anxiety," a phenomenon conceptualized for face-to-face interactions[133,134], to the social media context. To the best of our understanding, no research in existing literature examines the paradox of social anxiety within the framework of SNSs. This can be said to be the strength of the current study. Despite the self-evaluation anxiety and shared content anxiety, users continue to use SNSs excessively and problematically. Despite the negative potential of SNSs in terms of social anxiety,

users do not entirely disconnect from SNSs. This is because social interaction is a basic need, and people want to fulfill this need by making social connections[134,135]. In fact, people with high levels of social anxiety may have more need for belonging than those with low levels[136]. Social anxiety does not mean that there is no need to belong. Although people desire to connect with others, they may be anxious about realizing this desire[137]. Empirical findings emphasize that socialization anxiety does not prevent the emergence of positive emotions during socialization[134]. Considering the communication styles of today's technological societies, it is undeniable that SNSs are an important socialization tool. For this reason, the social anxiety paradox on SNSs can be seen as a phenomenon that deserves more detailed research. In future research, the underlying causes of the social anxiety paradox on SNSs and the variables related to it can be addressed from a more holistic perspective.

Despite its significant strengths, the current research has some inherent limitations. First, SNSs are treated as a general concept in the current study. However, PSMU, SMB, and social anxiety may differ according to the type of SNSs[23,138]. For example, a user who experiences Instagram burnout may not have such a problem on Facebook. Dhir et al.[17] emphasized that SMB also differs according to the type of SNSs. Moreover, it is also a matter of curiosity how users' social anxiety on SNSs varies across different platforms. In future studies, the effects of the relevant variables on discontinuous use can be investigated by focusing only on specific SNSs (e.g., *Instagram*). Due to the quantitative nature of the research, it is not possible to reveal what kind of anxiety users experience on SNSs. Previous studies have emphasized that sharing political information on SNSs causes more anxiety than other types of sharing[18,139]. Accordingly, the type of content of the post can shape users' behavioral patterns on SNSs. Therefore, qualitative and mixed-method research is needed to holistically address the reasons behind users' intention to use SMBs and discontinuous use, especially social anxiety.

Due to its cross-sectional design, the evidence from the present research cannot fully confirm the causal relationships between PSMU, users' social anxiety on SNSs, SMB, and discontinuous use. Although moderated mediator analyses are consistent with theoretical predictions, caution is needed when drawing causal conclusions, as the hypothetical design used in this research is correlational. Chen et al.[6] pointed out that variables such as stress, strain, and outcome may not be synchronized based on the SSO model and that measuring these variables simultaneously may pose some problems. They emphasized that conducting a cross-sectional study under the SSO model may cause inconsistencies between variables and cause participants to feel conflicted when completing the questionnaires. Longitudinal studies can be conducted to avoid such limitations. Given the limited sample size of Turkish young adults, it is challenging to generalize the study's results to a broader population. However, since it provides empirical support to the SSO framework and the relevant variables are not specific to a particular culture, the results of the present study have broader applicability outside Turkish culture and can be regarded internationally. Given that all variables were assessed using self-report measures, it is possible that young adults provided socially acceptable answers to these variables that contain negativity, such as PSMU, social anxiety, and SMB. For instance, heavy and problematic social media users may not see their social media usage habits as problematic. They may not know the exact duration of their usage. Smartphone applications that measure daily usage times can be utilized to prevent this situation. Mixed-method research designs can be employed in which quantitative and qualitative data support each other.

Identifying the stress factors that cause social anxiety on SNSs is vital for users to be aware of potential negative situations on SNSs and act accordingly. In this way, they can be aware of the events and approaches that trigger social anxiety and act consciously to cope with it. SMB, which occurs due to PSMU and overload, decreases users' enthusiasm for SNSs and desensitization. This can lead to users withdrawing from SNSs. Social media platforms can minimize factors that cause overload to prevent users from decreasing. Social media companies should take various measures to prevent information overload. In this way, users may encounter less unnecessary information. Algorithms can provide personalized content. Users confident that their personal information is secure and not shared with third parties have fewer privacy concerns. Social media companies can consider users' privacy concerns and develop various innovations and features to secure their data[16,23]. Policymakers, especially educators, are responsible for raising awareness about privacy violations and the limits of personal privacy on SNSs. Cyberbullying is another critical factor in forming SMB[41]. It is essential to provide comprehensive education on how to prevent and deal with cyberbullying from an early age. Various courses can be organized in non-formal education institutions for conscious SNS use. It is suggested that projects and academic studies be conducted to reveal the importance of social media literacy skills in conscious SNS use and develop this skill.

Conclusion

In this study, the structural relationships between college students' PSMUs, social anxiety on SNSs, SMBs, and discontinuous use of SNSs were examined from the SSO framework. PSMU and users' social anxiety on SNSs were identified as stressors. In response to these stressors, users' SMB experiences were identified as strain. Due to this strain, users' discontinuous use of SNSs was recognized as the outcome. The results indicated that SMB mediated the negative effect of PSMU on discontinuous use. Users' social anxiety on SNSs moderated the mediating effect of SMB. Users' social anxiety on SNSs had a buffering moderating effect on the association between PSMU and discontinuous use. The moderating effect of users' social anxiety on SNSs on the positive association between SMB and discontinuous use was significant.

Data availability

The data that support the findings of this study are available on reasonable request from the first author (servetuztemur@anadolu.edu.tr).

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Declarations

Competing interests
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